

Poverty Measurement: Orshansky's Original Measures and the Development of Alternatives*

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Mollie Orshansky, an economist in the Social Security Administration, developed a set of poverty measures that would go on to be used as one of the key indicators of the U.S. economy to provide the basis of eligibility determination for programs designed to help the poor, and to determine the allocation of billions of dollars in federal money to state and local governments. The origins of Orshansky's poverty measure, however, came from work that had a more modest goal of assessing risk of poverty among demographic groups (Fisher, p. 2). That Orshansky's poverty measure has remained the official measure of poverty is a testament to both the straightforward methodology used and its general acceptability. And to think that the careful analysis of a thoughtful government employee could have such an impact is inspiring. But the continued use of her poverty measure is also a testament to the methodological and political difficulty of implementing an alternative. In this article, we briefly review Orshansky's original poverty measure, consider alternative measures that have been developed, and discuss methodological and data issues that remain a challenge for implementing an alternative measure.

Unlike other standards of poverty that had been produced by the early 1960s in the run up to the War on Poverty, Orshansky developed a need-based

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measure of poverty. She used Department of Agriculture estimates of the minimum cost of enough food so that "... an American housewife making average choices can hope to provide her family with a diet meeting recommended nutritional goals" (Orshansky 1970, p. 234). Other needs, such as clothing and housing might have been included in a minimum threshold, but no standards like the USDA food plans had been developed for these goods (Fisher, p. 3). As a result, Orshansky's thresholds were developed solely on the basis of food costs, which were then multiplied by the inverse of the portion of the total family budget spent on food to obtain an estimate of total need. Citing 1955 USDA data showing that families of three or more spent about one-third of their after-tax money income on food, Orshansky multiplied the costs of the USDA minimal diets by three to account for the cost of other nonfood necessities. This method resulted in a threshold of \$3,165 for a nonfarm family of two adults and two children in 1961. Family resources, which were used to compare to the threshold to determine if a family was poor or not, were defined using the Census money income definition, which included all cash before taxes (after-tax income data were not available). A significant improvement Orshansky made to the poverty thresholds was to adjust them for families of different sizes and compositions and for farm or nonfarm status (since farm families could be expected to grow some of their own food). Previously, poverty thresholds had been expressed for families of all types and single individuals without further distinction by family size or composition.

Orshansky intended her thresholds and poverty measure to be used as a research tool (Orshansky 1969). But they were soon adopted for more extended purposes. Threshold estimates were used by the Office of Economic Opportunity as early as 1965 to budget and plan for antipoverty program eligibility (Orshansky 1970, p. 233). The measure became "official" in 1969 when the Budget Bureau designated the poverty measure as the official statistical series to be published regularly by the Census Bureau. Since then, these original thresholds have been updated yearly for inflation based on the consumer price index (CPI) (the distinctions by family type—headed by a man or woman—and farm residency have since been dropped). Otherwise, the current poverty thresholds are essentially as they were originally developed by Orshansky.

What Limitations of the Official Measure Spurred the Development of Alternative Measures?

Orshansky acknowledged the difficulty of quantifying a concept as broad and politically and emotionally sensitive as poverty, for which she suggested a religious solution:

For deciding who is poor, prayers are more relevant than calculation because poverty, like beauty, lies in the eye of the beholder. (Orshansky 1969, p. 244)

And she was right—there have been many critiques of the official poverty measure, some of them Orshansky recognized, some have become more apparent as social and economic characteristics and public policies have changed since the 1960s.

A basic critique of the thresholds used in the official measure of poverty is that need is based on food needs and not other needs such as clothing, housing,

or health care. Although these other needs are indirectly considered through the multiplier of the inverse of the food share of the total budget, this multiplier has never been adjusted to consider changes in need or consumption over time. For example, food spending now represents about 13% of spending for all consumers while housing expenditures are 33% of spending (Bureau of Labor Statistics, p. 4). This limitation was recognized by Orshansky, who recommended updating the thresholds for changes in costs of food and other necessities (Citro and Michael).

Another limitation of the current official measure is that it uses money income as the definition of family resources. This definition includes only cash income and transfers and is based on pretax income. It does not include the value of noncash benefits such as food stamps, health insurance, or housing assistance, nor does it account for taxes. As a result, many of the benefits from public programs aimed at poor families are not counted as income and the official measure of poverty is not sensitive to changes in these programs or to changes in taxes. This limitation in counting family resources was not a major omission when Orshansky developed the original measure because most transfers for low-income families were cash transfers and because low-income people paid very little in taxes at the time. Since then, in-kind benefits such as food stamps and school lunch, Medicaid, and housing assistance, have grown and a sizable portion of the nation's anti-poverty strategy is in the form of the earned income tax credit (EITC).

U.S. society has also undergone fundamental social and economic changes in the past forty years. Women's labor force participation has increased and, with it, child care expenses have become a larger component of family budgets (Ruggles 1990; Citro and Michael). Families themselves have changed as there are more single-parent families and more cohabiting couples than in the 1960s. An increasing number of parents do not live in the same household as their children and, while child support received as cash would count toward family resources for the family in which the child resides, child support owed is not counted against family resources even though it diminishes disposable income for those who owe it. These broad changes have implications for how a poverty measure is conceptualized and implemented and may not be fully reflected in the current official measure of poverty.

Analysts have also criticized the current measure because it does not reflect geographic differences in costs of living. For example, the cost of housing in very large cities is often much higher than the cost of similar housing in rural areas. The original thresholds have also been criticized because of the methods used to adjust the thresholds for different family types and sizes, which led to some irregular comparisons between family types. Other criticisms include the definition of the family unit in counting resources (e.g., excluding cohabiting partners or other household members who are not immediate family members) and how the thresholds are updated over time to account for price changes.

Alternative Poverty Measures

Limitations of the original Orshansky thresholds have spurred the development of alternative measures of poverty. These include:

- (a) Relative measures of poverty that count all those below a percentile of the income distribution as poor, or, more appropriately, that count those below a percentage of median income or consumption as poor. (The European Union has designated 60% of median income as the cutoff for “at risk of poverty” [Blank, p. 22].)
- (b) Thresholds based on expert budgets, which are normative standards of need based on experts’ knowledge about needs for commodities or baskets of commodities. (Orshansky used the USDA’s expert budget for food needs.)
- (c) Direct measures of material deprivation, such as lack of access to health care, poor housing conditions, or lack of access to quality education.
- (d) Consumption measures of poverty, which define resources by consumption (actually measured by expenditures) instead of by income. Resources measured by consumption are then compared to a threshold to determine poverty status.
- (e) Subjective measures that ask a representative sample of people what they believe is a minimum level of income or consumption needed to get by.
- (f) Measures of poverty depth and severity, which assess how poor people are (how far below a poverty threshold).

We do not give a thorough review of these alternative measures (see Ruggles 1990; Citro and Michael). Instead we focus on the National Academies proposed alternative measure of poverty, which has driven the most serious work on an alternative official measure of poverty.

Upon a Congressional request, the National Academy of Sciences (NAS) appointed an expert panel charged to study concepts, measurement methods, and information needs for a new poverty measure. The NAS panel’s work resulted in a report called *Measuring Poverty: A New Approach*, in which the panel recommended a revision to the current official poverty measure to be adopted for official government use (Citro and Michael). The revision included a change in the way the poverty thresholds were defined, how resources were counted, and consistency between the two.

The NAS panel recommended that the poverty thresholds should be based on expenditures for food, clothing, shelter (including utilities) and a “small amount for other needs” to include costs of personal items and household supplies. Consumer expenditure (CE) survey data would be used to estimate a percentage of median annual spending on these three items for a reference family (two adults and two children) and multiplied it by a small multiplier to include the “small amount for other needs.” The panel did not suggest an exact percentage of median spending nor an exact multiplier, but suggested a “reasonable range” for the initial threshold—between the 30th and 35th percentile of expenditures of food, clothing, and shelter with a multiplier in the range from 1.15 to 1.25 for other necessary items. To apply the thresholds to families of different sizes, the panel recommended using a two-parameter equivalence scale that would account for economies of scale for larger families and for differences in need between adults and children. The NAS panel also recommended that the thresholds should be updated each year. Further, as a proxy for differences in costs across geographic areas, the panel recommended developing a cost of

housing index that varied across region and across metropolitan versus nonmetropolitan areas to adjust the housing expenditures portion of the threshold.

The NAS panel recommended using a disposable income concept in accounting for family resources. The specific measure of family resources recommended included all money and near-money income, which would include all cash sources of income as well as the value of nonmedical in-kind benefits, but exclude out-of-pocket medical expenses, income and payroll taxes, child care expenses in households without a nonworking parent, work-related expenses for each working adult in the household, and child support owed to other households. The resource definition did not include the value of public and private insurance benefits. However, the panel recommended subtracting out-of-pocket medical expenses since even those with insurance pay some costs to receive care.

Additionally, the NAS panel recommended continued use of the "family" as the unit of analysis but recommended that the definition of family be expanded to include cohabiting couples. The panel also recommended that the Survey of Income and Program Participation (SIPP) should be the data set used as the basis of income and poverty statistics instead of the March Current Population Survey (CPS).

Implementing Alternative Measures of Poverty

Using the NAS panel's recommendations as a guide, the Census Bureau, in collaboration with staff of the Bureau of Labor Statistics, developed alternative measures of poverty and released estimates of what were called "experimental" measures in two reports in 1999 and 2001 (U.S. Census Bureau 1999 and 2001). From 1999–2002, annual reports on estimates of poverty based on the official poverty measure included a section on NAS-based alternative measures of poverty (U.S. Census Bureau 2000, 2001, 2002). The practice of including NAS-based alternative measures of poverty in the annual poverty report was ended in 2003 when alternative estimates were published as a separate report (U.S. Census Bureau 2005) that included NAS-based alternatives as well as measures that only used different definitions of resources together with the same Orshansky-developed thresholds. Since then, NAS-based alternative measures of poverty have not been published by the Census Bureau, but instead are estimated and released on the Bureau's website. Measures of poverty that adjust the definition of family resources but compare them to what are essentially the Orshansky thresholds (using different price indices to update them) continue to be estimated and published (see U.S. Census Bureau 2006 and 2007).

Implementing the NAS panel's recommendations required adjusting both the thresholds that were originally developed by Orshansky and adjusting the way family resources were counted. Some recommendations were simpler to implement than others.

To estimate the basic thresholds, the Census Bureau used CE data and took the midpoint of the 30th to 35th percentile range of expenditures on food, clothing, and shelter and the midpoint of the multiplier to estimate the thresholds for a family of two adults and two children. Implementing this part of the new thresholds has been relatively straightforward.

The NAS panel recommended adjusting the thresholds for different family types and sizes using a two-parameter equivalence scale. But recent work suggests that a three-parameter equivalence scale may be more appropriate than the two-parameter scale recommended by the panel (Betson). This three-parameter scale not only accounts for economies of scale for larger families and differences in need between adults and children (as the two-parameter equivalence scale did), but it also adjusts the thresholds for families with children as opposed to families without children, regardless of how many adults are in the family. These equivalence scale adjustments have been relatively uncontroversial in the literature.

The NAS recommendation to adjust the thresholds for geographical differences in prices has generated some controversy. Lack of data is a key problem. The panel recommended using interarea differences in housing costs to adjust the thresholds for six metropolitan areas and nine regional Census areas. An alternative method uses fair market rents (FMR) (gross rent, including utilities, at the 40th percentile of the rent distribution of standard quality rental housing) that are developed annually by HUD for almost 2,500 counties and for all 341 metropolitan areas. FMR's are attractive because they are available annually and provide estimates of price differences for more finely defined geographical areas. But many observers have pointed out data limitations of the source of the FMR estimates as well as conceptual limitations to the approach (NRC p. 16). The Census Bureau has published estimates of poverty based on geographically adjusted and unadjusted alternative thresholds using both methods of geographical adjustment. In reality though, the methodological concerns of geographical adjustment of the thresholds have been swamped by the political implications of geographical adjustment.

The panel's recommended disposable income definition of family resources called for subtracting basic expenses from family resources, such as taxes, child care, work-related expenses, and medical-out-of-pocket (MOOP) expenses and including the value of nonmedical in-kind benefits. Most of the components of this definition have been uncontroversial and fairly easy to incorporate in alternative estimates. There have, however, been concerns about some components of the definition of family income—both in what should and should not be included in the definition. Specifically, the panel did not recommend including income flows associated with the value of owned housing. Further, except to deduct MOOP expenses, the panel did not recommend valuing health insurance benefits (Medicare or Medicaid or health insurance subsidized by employers) or needs. Methods to account for child care expenses have also received attention since the NAS panel's recommendations. We briefly discuss each of these.

Families who own their own homes or who have low mortgages have more disposable resources to spend on other necessities than those who rent or have high mortgages. It is this benefit from home ownership that would ideally be captured in poverty measurement. But there are many difficulties in doing so and the NAS panel did not feel the methods were advanced enough to make a recommendation. Since then, the following methods have been further developed (see NRC, p. 26–27):

- (a) Estimate the rental equivalence of a home—the value that a home owner would receive if they rented their house—to then incorporate into the housing component of the threshold. Accordingly, family resources include net implicit income from housing—the difference between potential rental value of the house and any expenses to finance and maintain the house;
- (b) A user cost-of-capital approach, which is equal to the rental amount for renters and the rental equivalence for owners, both of which are incorporated into the thresholds. Accordingly, the net implicit income for home owners is added to family resources;
- (c) Account for out-of-pocket expenses of owning a home in the thresholds.

Despite progress for each of these methods, there is still disagreement about how best to incorporate the value of owner occupied housing in poverty measurement.

Accounting for the value of health insurance and the expense of medical care is another technically difficult problem. Medical expenditures vary greatly across the population and across age, health status, and insurance coverage status. Further, valuing insurance is difficult because insurance is not fungible—that is, it is not freely interchangeable with cash or with other necessary items (Citro and Michael). The lack of methods to handle health insurance valuation and health care needs led the NAS panel to recommend that out-of-pocket medical expenses be subtracted from family resources. The thresholds would not be adjusted for medical need nor would the value of health insurance be added to family resources.

Census Bureau publications of alternative poverty measures used as many as three different methods to account for medical need. One method uses variations of the panel's recommendation to account for MOOP in family resources, one counts MOOP in the thresholds—by predicting medical need for different family types—and, finally, one combines both approaches—adjusting family resources and the thresholds. In this last approach, the thresholds are adjusted as in the second method, but “unexpected” MOOP is subtracted from family resources, not actual MOOP (unexpected MOOP is the difference between predicted medical need and actual MOOP). Of these three methods, the second and third cause the largest changes in poverty rates relative to the official threshold (Census Bureau 2002 and 2003). The relatively simple first approach is favored by some because it would reflect the actual distribution of MOOP in the population. However, a key concern of the first method is that many uninsured individuals will have very low MOOP expenses, and will therefore look better off even though they may have medical needs that may actually make them worse off. For this reason, others prefer the method that also adjusts the thresholds for expected medical need.

Alternative poverty measures have used different methods to estimate child care costs. These methods reflect the different methods used to account for medical expenses—that is, to subtract *actual* child care expenses (with a cap) from family resources or to subtract an *expected* amount of child care expenses from family resources based on family composition and working status. (Adding child care expenses to the threshold as a basic need was given less

consideration because it would require different thresholds by family type and working status.) These adjustments to family resources are only made for families with children with only one parent or with two working parents. Estimates based on these methods show similar poverty rates, although the method that uses actual expenses (instead of expected) shows a slightly lower overall poverty rate (U.S. Census Bureau 1999).

Data Sources

The NAS panel recommended using the SIPP as the base data set for the official poverty measure. This recommendation was made largely because SIPP contains monthly data on income and program participation and because it collects information on taxes, assets, work expenses, child care, medical care costs, and child support, while the March CPS (now the CPS annual social and economic supplement) does not. The SIPP has also had more success collecting information about income from transfer programs than the CPS has (relative to administrative records) and could better capture a key component of income for low-income families.

Since the NAS panel's recommendations, the sample size for SIPP has increased; however, sample attrition over the lifespan of each panel has also increased. Transfer income underreporting in the CPS has worsened over this time period (Meyer, Mok, and Sullivan). Underreporting of program participation in the SIPP is also a problem and the quality of income data, overall, has declined in the SIPP, too (Czajka). Moreover, to date, the Census Bureau has not been able to process and release the SIPP data in a timely manner. Until these problems are solved, SIPP cannot be a source for estimates of poverty that would be a realistic alternative to the official measure. The Census Bureau is currently seeking funding to continue SIPP in its current form and, at the same time, work on research and development of a reengineered SIPP that would be more timely and, hopefully, produce data of higher quality. If the necessary funds are received, there would be a new SIPP panel in 2008 to continue the data series from the expiration of the current 2004 panel, and a reengineered SIPP panel would be introduced in 2011 or 2012.

Are We Any Closer to Changing the Official Poverty Measure?

A thousand poverty measures have bloomed since the NAS panel issued its recommendations for an alternative measure of poverty. While this flurry of attention to alternative poverty measures is good and may help us better understand the problem of poverty, the official measure of poverty has not changed. Are we any closer to changing the official poverty measure? The short and obvious answer may be "no." However, there have been some efforts to get closer to that goal.

During the second term of the Clinton Administration, senior officials pushed the idea of replacing the official poverty measure with one of the NAS-based alternatives produced by the Census Bureau (Blank, p. 14). This effort was eventually dropped, not because of methodological concerns. Rather, it was dropped because although the new measure was going to be benchmarked to the current official poverty level to keep the poverty rate constant initially, the political hurdles of the implications of the change were too high (Blank, p. 14-15).

In 2004, the University of Maryland and the U.S. Department of Commerce and Department of Health and Human Services put together a research seminar to "... explore the limitations of the current federal poverty measure and to identify alternative approaches for gauging the well-being of low-income Americans" (Besharov and Germanis, p. 2). This seminar series brought together private and government researchers along with some senior-level government officials to consider better poverty measures. The seminar did not lead to any recommendations for a new measure, but the papers, presentations, and summaries are available on the Internet (<http://www.welfareacademy.org/>).

Also in 2004, the National Academies held a workshop on poverty measurement to obtain feedback on the scientific methodology of alternative poverty measures. A summary of the proceedings was published (NRC). The workshop focused on components of alternative measures that were more difficult to implement. Specifically, equivalence scales, geographic adjustment of the thresholds, accounting for work and child care expenses, accounting for medical expenses, accounting for housing, and setting and updating the thresholds were the focus of the workshop. Of these, the workshop summary suggests that there was general agreement on some aspects of measures such as an equivalence scale methodology, a method for accounting for work and child care expenses, and for setting and updating thresholds. On the other hand, there was still a great deal of disagreement on how to account for housing and medical needs and benefits. Further, while most participants agreed that geographically adjusting the thresholds was the conceptually correct thing to do, the techniques for doing so were not yet sufficient to actually implement such adjustments.

Experts involved in poverty measurement have also suggested ways to move closer to changing the official measure of poverty. Patricia Ruggles, in Congressional testimony last summer, suggested the use of one of the alternative poverty measures based on the NAS panel's recommendations and implemented by the Census Bureau (Ruggles 2007). She suggested that an interagency task force or a set of outside experts should recommend which alternative measure would be implemented. Rebecca Blank has suggested distancing responsibility and authority for poverty measurement away from the Executive Office of the President and into a statistical agency, where poverty measurement could be better shielded from the politics of the measure. This would be an arrangement similar to which other major economic statistics are produced and released, for example, the unemployment rate or the CPI under the Bureau of Labor Statistics (Blank). Dr. Blank also recommended the agency should be responsible for annually publishing an alternative poverty measure, perhaps calling it the "Revised Poverty Measure." Blank also suggested that public programs that base eligibility on poverty status could still use guidelines based on the official poverty measure instead of those based on the Revised Poverty Measure. Further, the Revised Poverty Measure would be part of a larger effort by the U.S. government to track economic conditions of the poor with other measures of deprivation, such as consumption and relative measures of poverty, income distribution measures, material deprivation measures, and measures of access to education and health.

The political hurdles to implementing a new poverty measure are daunting. But it is our opinion that the methodological issues are not. It may take divine

intervention to get universal agreement on a new official poverty measure, as Mollie Orshansky suggested. But while we wait for this divine intervention, the current official measure grows increasingly out-of-date and loses credibility. Alternative measures upon which most analysts can reasonably agree have already been produced. Implementing one of these alternatives as the "Revised Poverty Measure" as Dr. Blank suggests, would be a significant improvement over the current official measure because it would reflect changes in consumption, prices, public policy, and sociodemographic factors that have occurred over the decades that have passed since Orshansky's original contribution.

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